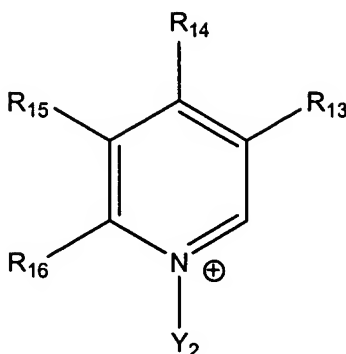


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-27. (Cancelled)

28. (Original) A compound of formula VII:



(VII)

wherein

a. R¹³, R¹⁴, R¹⁵ and R¹⁶

1. are independently selected from hydrogen, acylamino, acyloxyalkyl, alkanoyl, alkanoylalkyl, alkenyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, alkylamino, (C1-C3)alkylenedioxy, allyl, amino, ω-alkylenesulfonic acid, carbamoyl, carboxy, carboxyalkyl, cycloalkyl, dialkylamino, halo, hydroxy, (C₂-C₆)hydroxyalkyl, mercapto, nitro, sulfamoyl, sulfonic acid, alkylsulfonyl, alkylsulfinyl, alkylthio, trifluoromethyl, azetidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, piperidin-1-yl, 4-[C₆ or C₁₀]arylpiperidin-1-yl, 4-[C₆ or C₁₀]arylpiperazin-1-yl, Ar³ (wherein Ar³ is C₆ or C₁₀ aryl), Ar³-alkyl, Ar³-O, Ar³SO₂-, Ar³SO-, Ar³S-, Ar³SO₂NH-, Ar³NH, (N-Ar³)(N-alkyl)N-, Ar³C(O)-, Ar³C(O)NH-, Ar³NH-C(O)-, and (N-Ar³)(N-alkyl)N-C(O)-, or together R₁ and R₂ comprise methylenedioxy; or

2. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a C₆- or C₁₀- aromatic fused ring system; or

3. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a C₅-C₇ fused cycloalkyl ring having up to two double bonds including the fused double bond of the pyridinium containing ring, which cycloalkyl ring can be substituted by one or more of the group

consisting of alkyl, alkoxy, carbonyl, amino, aminocarbonyl, carboxy, fluoro, or oxo substituents;
or

4. form, with an adjacent pair from R^{13} , R^{14} , R^{15} and R^{16} , together with their ring carbons, a 5- or 6-membered heteroaryl ring, wherein the 6-membered heteroaryl ring contains one to three atoms of N, and the 5-membered heteroaryl ring contains from one to three atoms of N or one atom of O or S and zero to two atoms of N, each heteroaryl ring may be optionally substituted with one or more 1-pyrrolidinyl-, 4-[C_6 or C_{10}]aryl piperazin-1-yl, 4-[C_6 or C_{10}]aryl piperidin-1-yl, azetidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, piperidin-1-yl, halo or (C_1 - C_3)alkylenedioxy groups; or
5. form, with an adjacent pair from R^{13} , R^{14} , R^{15} and R^{16} , together with their ring carbons, a five to eight membered heterocycle, wherein the heterocycle consists of ring atoms selected from the group consisting of carbon, nitrogen, and $S(O)_n$, where $n=0,1$, or 2;

b. Y^2 is a group of the formula $-CH(R^5)-R^6$ wherein

(a) R^5 is hydrogen, alkyl-, cycloalkyl-, alkenyl-, alkynyl-, aminoalkyl-, dialkylaminoalkyl-, (N-[C_6 or C_{10}]aryl)(N-alkyl)aminoalkyl-, piperidin-1-ylalkyl-, 1-pyrrolidin-1-ylalkyl, azetidinyalkyl, 4-alkylpiperazin-1-ylalkyl, 4-alkylpiperidin-1-ylalkyl, 4-[C_6 or C_{10}]aryl piperazin-1-ylalkyl, 4-[C_6 or C_{10}]aryl piperidin-1-ylalkyl, azetidin-1-ylalkyl, morpholin-4-ylalkyl, thiomorpholin-4-ylalkyl, piperidin-1-ylalkyl, [C_6 or C_{10}]aryl, or independently the same as R^6

(b) R^6 is phenyl substituted at the para position with chloro or fluoro;

(2) a group of the formula $-W-R_s$, wherein W is $-C(=O)-$ or $-S(O)_n-$ where $n=1$ or 2;

(3) a group of the formula $-W-N(R^9)R^{10}$, wherein

[a] R^9 is hydrogen and R^{10} is an alkyl or cycloalkyl, optionally substituted by

(i) [C_6 or C_{10}]aryl, or

(ii) a 5- or 6-membered heteroaryl ring, wherein the 6-membered heteroaryl ring contains one to three atoms of N, and the 5-membered heteroaryl ring contains from one to three atoms of N or one atom of O or S and zero to two atoms of N, said heteroaryl 5 ring can be optionally substituted with one or more 1-pyrrolidinyl, 4-[C_6 or C_{10}]aryl piperazin-1-yl, 4-[C_6 or C_{10}]aryl piperidin-1-yl, azetidin-1-yl, and morpholin-4-yl, thiomorpholin-4-yl, piperidin-1-yl, halo or (C_1 - C_3)alkylenedioxy groups, or fused to a phenyl or pyridine ring, wherein the ring fusion is at a carbon-carbon double bond of the heteroaryl ring, or

(iii) a heterocycle containing 4-10 ring atoms of which 1-3 are heteroatoms selected from the group consisting of oxygen, nitrogen and sulfur; or

[b] R⁹ is hydrogen or lower alkyl and R¹⁰ is Ar³ or

[c] R⁹ is hydrogen or lower alkyl, and R¹⁰ is a heterocycle containing 4-10 ring atoms of which 1-3 are heteroatoms are selected from the group consisting of oxygen, nitrogen and sulfur, said heterocycle; or

[d] R⁹ and R¹⁰ are both alkyl groups; or

[e] R⁹ and R¹⁰ together with N form a heterocycle containing 4-10 ring atoms which can incorporate up to one additional heteroatom selected from the group of N, O or S in the ring, wherein the heterocycle is optionally substituted with (C₆ or C₁₀)aryl, (C₆ or C₁₀)arylalkyl, or a 5- or 6-membered heteroaryl ring, wherein the 6-membered heteroaryl ring contains one to three atoms of N, and the 5-membered heteroaryl ring contains from one to three atoms of N or one atom of O or S and zero to two atoms of N, each such heteroaryl can be optionally substituted with one or more 1-pyrrolidinyl, 4-[C₆ or C₁₀]arylpiperazin-1-yl, 4-[C₆ or C₁₀]arylpiperidin-1-yl, azetidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, piperidin-1-yl, halo or (C₁-C₃)alkylenedioxy; or

[f] R⁹ and R¹⁰ are both hydrogen;

c. X is a pharmaceutically acceptable anion, or

(B) a pharmaceutically acceptable salt of the compound,

wherein aryl or Ar³ can be substituted with, in addition to any substitutions specifically noted, one or more general substituents selected from the group consisting of acylamino, acyloxyalkyl, alkanoyl, alkanoylalkyl, alkenyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, alkylamino, (C₁-C₃)alkylenedioxy, alkylsulfonyl, alkylsulfinyl, ω-alkylenesulfonic acid, alkylthio, allyl, amino, Ar³C(O)-, Ar³C(O)NH-, Ar³O-, Ar³-, Ar³-alkyl-, carboxy, carboxyalkyl, cycloalkyl, dialkylamino, halo, trifluoromethyl, hydroxy, (C₂-C₆)hydroxyalkyl, mercapto, nitro, sulfamoyl, sulfonic acid, 1-pyrrolidinyl, 4-[C₆ or C₁₀]arylpiperazin-1-yl-, 4-[C₆ or C₁₀]arylpiperidin-1-yl, azetidin-1-yl, morpholin-4-yl, thiomorpholin-4-yl, piperidin-1-yl;

wherein heterocycles, except those of Ar³, can be substituted with, in addition to any substitutions specifically noted, the following general substitutions: acylamino, alkanoyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, alkylamino, alkylsulfonyl, alkylsulfinyl, alkylthio,

amino, $\text{Ar}^3\text{C}(\text{O})-$, $\text{Ar}^3\text{O}-$, Ar^3- , carboxy, dialkylamino, fluoro, fluoroalkyl, difluoroalkyl, hydroxy, mercapto, sulfamoyl, or trifluoromethyl;

wherein, if the compound of formula VII has a core structure comprising a pyridinium ring having a 2-aryl-2-oxoethyl substitution at the 1 position, wherein the aryl can be substituted, and a formyl which may be substituted at the 3 position, one or both of the following applies:

the compound of formula VII differs from a salt of pyridinium compound having a 1-(2-aryl-2-oxoethyl), wherein the aryl can be substituted, and a formyl which may be substituted at the 3 position by at least one additional substitution at R^{14} , R^{15} or R^{16} , or

the aryl of 2-aryl-2-oxoethyl is phenyl and is substituted at the para position with an electron withdrawing group selected from fluoro, chloro, nitro, trifluoromethyl, and carbamoyl; and

wherein the compound of formula VII differs from a salt of 1-[2-(4-methylphenyl)-2-oxoethyl]-pyridinium by one or more of the lack or replacement of the methyl substitution, or the presence of one or more additional substitutions.

29. (Original) The compound of claim 28, wherein Y^2 is according to formula $-\text{CH}(\text{R}^5)-\text{W}-\text{Rs}$.

30. (Original) The compound of Claim 28, wherein an adjacent pair from R^{13} , R^{14} , R^{15} and R^{16} , together with their ring carbons, form a C_6 - or C_{10} - aromatic fused ring which can be substituted by one or more halo, amino, alkyl, sulfonic acid, alkylsulfonyl or ω -alkylenesulfonic acid groups, or a C_1 - C_3 alkylenedioxy group.

31. (Original) The compound of claim 28, wherein

a. R^{13} , R^{14} , R^{15} and R^{16}

1. are independently selected from hydrogen, acylamino, acyloxyalkyl, alkanoyl, alkanoylalkyl, alkenyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, $(\text{C}_1\text{-C}_3)$ alkylenedioxy, allyl, ω -alkylenesulfonic acid, carbamoyl, carboxy, carboxyalkyl, cycloalkyl, halo, hydroxy, $(\text{C}_2$ -

C₆)hydroxyalkyl, mercapto, nitro, sulfamoyl, sulfonic acid, alkylsulfonyl, alkylsulfinyl, alkylthio, trifluoromethyl, Ar³, Ar³-alkyl, Ar³-O, Ar³SO₂-, Ar³SO-, Ar³S-, Ar³SO₂NH-, Ar³NH, (N-Ar³)(N-alkyl)N-, Ar³C(O)-, Ar³C(O)NH-, ArNH-C(O)-, and (N-Ar)(N-alkyl)N-C(O)-; or

2. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a C₆- or C₁₀- aromatic fused ring system; or

3. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a C₅-C₇ fused cycloalkyl, which cycloalkyl ring can be substituted by one or more of the group consisting of alkyl, alkoxy, carbonyl, aminocarbonyl, carboxy, fluoro, or oxo substituents; or

4. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a 5- or 6-membered heteroaryl ring, wherein each heteroaryl ring may, in addition to the general substitutions, be optionally substituted with one or more halo or (C₁-C₃)alkylenedioxy groups; or

5. form, with an adjacent pair from R¹³, R¹⁴, R¹⁵ and R¹⁶, together with their ring carbons, a five to eight membered heterocycle;

b. Y is a group of the formula -CH(R⁵)-R⁶ wherein

(a) R⁵ is hydrogen or alkyl;

(b) R⁶ is

(1) cyano or Rs;

(2) a group of the formula -W-Rs, wherein W is -C(=O)- or -S(O)_n- where n=1 or 2;

(3) a group of the formula -W-N(R⁹)R¹⁰, wherein

[a] R⁹ is hydrogen and R¹⁰ is an alkyl or cycloalkyl, optionally substituted by

(i) [C₆ or C₁₀]aryl, or

(ii) a 5- or 6-membered heteroaryl ring, wherein said heteroaryl ring can, in addition to the general substitutions, be optionally substituted with one or more halo or (C₁-C₃)alkylenedioxy groups, or fused to a substituted phenyl, or

(iii) a heterocycle containing 4-10 ring atoms; or

[b] R⁹ is hydrogen or lower alkyl and R¹⁰ is Ar³ or

[c] R⁹ is hydrogen or lower alkyl, and R¹⁰ is a heterocycle; or

[d] R⁹ and R¹⁰ are both alkyl groups; or

[e] R⁹ and R¹⁰ together with N form a heterocycle, wherein each heteroaryl thereon can, in addition to the general substitutions, be optionally substituted with one or more halo or (C₁-C₃)alkylenedioxy; or

[f] R^9 and R^{10} are both hydrogen; and

g. X is a pharmaceutically acceptable anion, or

(B) a pharmaceutically acceptable salt of the compound,

wherein aryl or Ar^3 can be substituted with, in addition to any substitutions specifically noted, one or more general substituents selected from the group consisting of acylamino, acyloxyalkyl, alkanoyl, alkanoylalkyl, alkenyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, (C_1-C_3) alkylenedioxy, alkylsulfonyl, alkylsulfinyl, ω -alkylenesulfonic acid, alkylthio, allyl, $Ar^3C(O)-$, $Ar^3C(O)NH-$, Ar^3O- , Ar^3- , Ar^3 -alkyl-, carboxy, carboxyalkyl, cycloalkyl, halo, trifluoromethyl, hydroxy, (C_2-C_6) hydroxyalkyl, mercapto, nitro, sulfamoyl, sulfonic acid; and

wherein heterocycles, except those of Ar, can be substituted with, in addition to any substitutions specifically noted, the following general substitutions: acylamino, alkanoyl, alkoxy, alkoxycarbonyl, alkoxycarbonylalkyl, alkyl, alkylsulfonyl, alkylsulfinyl, alkylthio, $Ar^3C(O)-$, Ar^3O- , Ar^3- , carboxy, fluoro, fluoroalkyl, difluoroalkyl, hydroxy, mercapto, sulfamoyl, or trifluoromethyl.

32. (Original) The compound of claim 31, wherein Y^2 is according to formula $-CH(R^5)-W-Rs$.

33. (Original) A compound of claim 28, selected from:

3-(aminocarbonyl)-1-[2-(4-chlorophenyl)-2-oxoethyl]pyridinium chloride;

3-(aminocarbonyl)-1-benzylpyridinium bromide;

3-Carbamoyl-1-(4-methoxy-benzyl)-pyridinium chloride; and

3-Carbamoyl-1-[2-(4-fluoro-phenyl)-2-oxo-ethyl]-pyridinium chloride.

34. (Original) A pharmaceutical composition comprising: a compound of one of claims 28 to 33; and a pharmaceutically acceptable excipient.

35-50. (Cancelled)